

Operating instructions

Please read bevor start-up!

**Each person who operates, maintains or repairs the device
must have read the operating instructions,
especially the safety regulations before start-up.**

Original version in German
Stand 04/2014

Drill stands

Drilling stands / Milling stands

Milling table

and Accessories

Dear customer!

With the purchase of **WABECO Drilling and milling stand** you have chosen a quality product. We have taken great care in its manufacture and we have given it a thorough quality control test.

These operating instructions are to help you to work with it safely and properly. Therefore, please read the respective instructions carefully and pay attention to them.

After unpacking the device please check to see if any kind of damage has occurred during transportation. Any complaints must be made immediately. Complaints made at a later date **cannot** be accepted.

Changes referring the construction, configuration and accessories remain in the interest of development in reserve. Therefore you can not make any demands cause of our indications, illustrations and descriptions. If there is anything unclear, please do not hesitate to contact us.

Duplications or copies of this document of any kind, or of excerpts, require a written approval by WABECO

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1. Delivery

Please check the following upon receipt of delivery

1. whether the packaging has been damaged and/or
2. whether the device shows signs of transport damage or if there are reasons for complaints. In this case we request your immediate notification. Claims made at a later date cannot be considered.

2. Safety regulations

1. **Please note that for damages caused by not following these instructions, no liability is accepted.**
2. **The operator of the device must ensure that at least one copy of the operating instructions is kept close to the device and is available to all persons who work with the device.**
3. **Wear safety goggles when working with the device.**
4. **Do not remove the drill chips with the hand. Use corresponding aids (hand brush, hook, paint brush).**
5. **The work pieces must be secured so that they cannot be entrained by the drill respectively by the milling tool.**
6. **Do not drill into the table.**
7. **Work pieces must be fixed by appropriate fixing means e. g. V-blocks, machine vices.**
8. **Drill chuck keys or similar tools must not be attached to the device so that they do not get caught by the spindle and get flung around.**

3. Drill stands

3.1 Version

Steel column Ø **30 mm**

No. 22300 without machine vices 60 mm

No. 22305 with machine vice 60 mm

Steel column Ø **35 mm**

No. 22400 without rotary table

No. 22404 with rotary table Ø 180 mm

3.2 Assembly

1. Please put the column (7) into the receiving hole of the base plate (1)
2. Tighten the clamping screw (1.1)
3. Now the drill stand is complete and ready for work.
4. **Fix the drill stand to a strong support featuring absolute plainness and use 4 screws M8.**

3.3 Lubrication

Prior to every use, some commercially available lubricating oil should be applied to the guide column and to the rotating points of the feed shaft. The machine support of the drill stand must be moved up and down in the process.

3.4 Attaching the Drill

1. Position the neck of the hand-held drilling machine in the machine support (9)
2. Tighten the clamping screw (9.1) using an Allen key

3.5 Working with depth stop

1. Loosen the locking screw (4.1) as well as the clamping screw (3) by means of an Allen key.
2. Lower the drill with drill bit by using the feed lever (8.1) in position until it is just above the work piece.
3. Retighten the locking screw (4.1).
4. Use the feed lever (8.1) to lower the drill until the tip of the drill bit touches the work piece.
Note the reading on the graduated scale of the machine support (9)!
5. Remove the work piece and loosen the locking screw (6.1).

3. Drill stands

3.5 Working with depth stop

6. Lower the machine support (9) with the feed lever (8.1) according to the value read on the scale and according to the depth of the hole and push the depth stop (6) until the clamping element (4). In this position re-tighten the locking screw (6.1).
7. Let the machine support (9) move back again so that the work piece can be secured in its position.
The depth stop is hereby set at the desired hole depth and can be used.

3.6 Adjust the play of the machine support

The machine support (9) of the drill stand can be adjusted without play. Should re-adjustment become necessary, please proceed as follows:

1. Loosen the two nuts (2.1)
2. Turn the first eccentric setscrew (2) right using an Allen key and
3. Turn the second eccentric setscrew (2) left until the machine support (9) can still be moved back easily by the pressure spring (5) and works without play.
4. Afterward retighten the nuts (2.1).

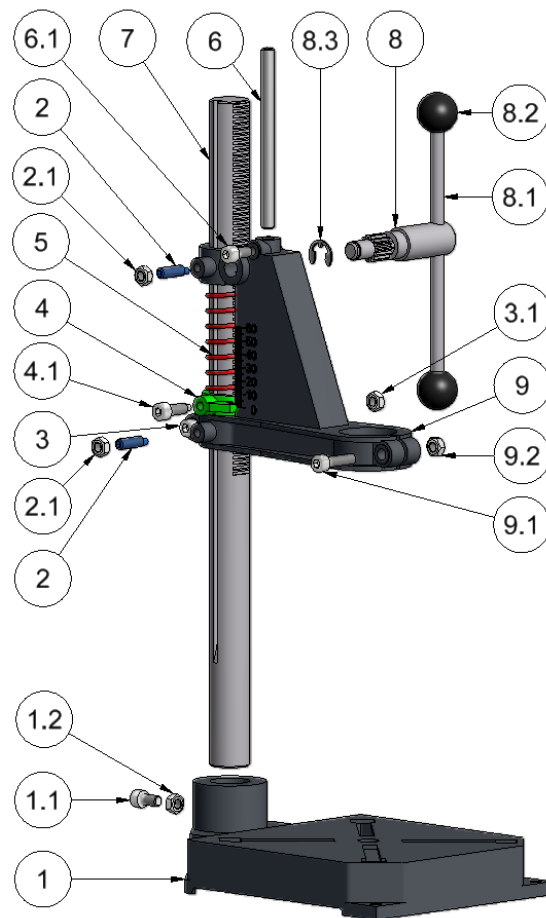
The engine support (9) can be rotated by 360° with the steel column (7) after loosening the clamping screw (1.1) in the base plate (1).

For milling please clamp the machine support (9) with the clamp screw (3) on the steel column (7).

For drilling please open the clamping of the machine support (9) by releasing the clamping screw (3).

3. Drill stand

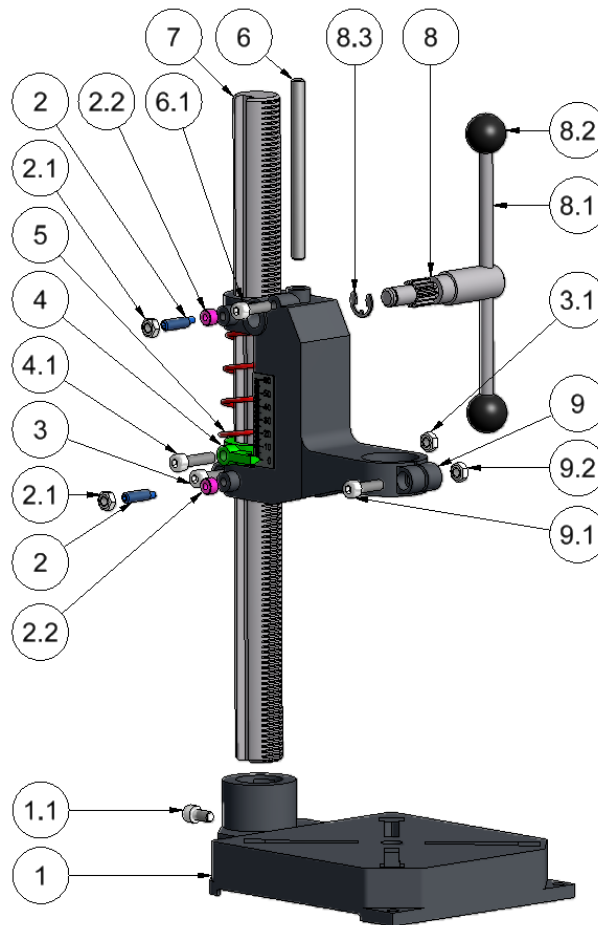
3.7 Drawing and legend Order No. 22300 - 22305



Part No.	Pieces	Order No.	Designaion
1	1	51006831-0006	Base plate
1.1	1	16191200008016	Clamp screw
1.2	1	16143900008000	Nut
2	2	91300008030-01	Eccentric setscrew
2.1	2	16193400008000	Nut
3	1	16191200008020	Screw
3.1	1	16193400008000	Nut
4	1	51006831-0005	Clamping element
4.1	1	91200008025-01	Screw
5	1	51502030	Pressure spring
6	1	51004010-0002	Depth stop
6.1	1	16191200008016	Screw
7	1	51004030-0001	Column
8	1	51004025-0002	Feed shaft
8.1	1	51004010-0003	Feed lever
8.2	2	51508311	Ball
8.3	1	16067990012000	Locking washer
9	1	51006831-0004	Maschine support
9.1	1	16191200008030	Screw
9.2	1	16193400008000	Nut

3. Drilling stands

3.8 Drawing and legend Order No. 22400 – 22404



Part No.	Pieces	Order No.	Designation
1	1	51006831-0003	Base plate
1.1	1	16191200008016	Clamping screw
2	2	91300008030-01	Eccentric setscrew
2.1	2	16193400008000	Nut
2.2	2	51508019	Guiding roller
3	1	16191200008025	Screw
3.1	1	16193400008000	Nut
4	1	51006831-0002	Clamping element
4.1	1	16191200008030	Screw
5	1	51502028	Pressure spring
6	1	51004010-0002	Depth stop
6.1	1	16191200008025	Screw
7	1	51004035-0002	Steel column
8	1	51004025-0001	Feed shaft
8.1	1	51004010-0003	Feed lever
8.2	2	51508311	Ball
8.3	1	16067990012000	Locking washer
9	1	51006831-0001	Machine support
9.1	1	16191200008025	Clamping screw
9.2	1	16193400008000	Nut

4. Drilling stands/Milling stands

4.1 Version

Solid steel column **500 mm**, hexagonal steel bracket **350 mm**

- | | |
|-----------|----------------------------|
| No. 24400 | without rotary table |
| No. 24404 | with rotary table Ø 180 mm |

Solid steel column **500 mm**, hexagonal steel bracket **500 mm**

- | | |
|-----------|----------------------------|
| No. 24401 | without rotary table |
| No. 24408 | with rotary table Ø 180 mm |

Solid steel column **750 mm**, hexagonal steel bracket **500 mm**

- | | |
|-----------|----------------------------|
| No. 24500 | without rotary table |
| No. 24504 | with rotary table Ø 180 mm |

Solid steel column **1000 mm**, hexagonal steel bracket **500 mm**

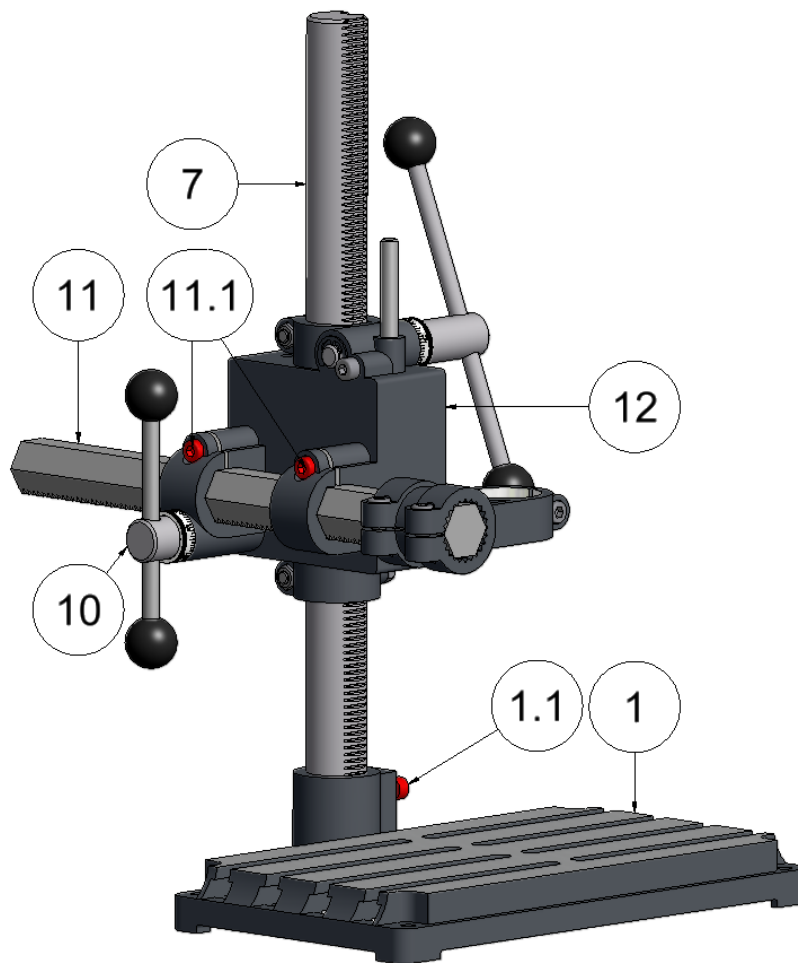
- | | |
|-----------|----------------------------|
| No. 24454 | without rotary table |
| No. 24457 | with rotary table Ø 180 mm |

4.2 Assembly

1. Please put the column (7) into the hole of the base plate (1).
2. Tighten the clamping screw (1.1).
3. Insert the extension rail (11) into the hexagonal bore of the housing (12), so that the toothing of the extension rail (11) and the feed shaft (10) fit together.
4. By means of the clamping screws (11.1) the guide is play-free adjustable.
5. Now the drilling and milling stand is complete and ready to work.
6. **Fix the drillingan milling stand to a strong support featuring absolute plainness and use 4 screws M8.**

4. Drilling stands/Milling stands

4.2 Assembly



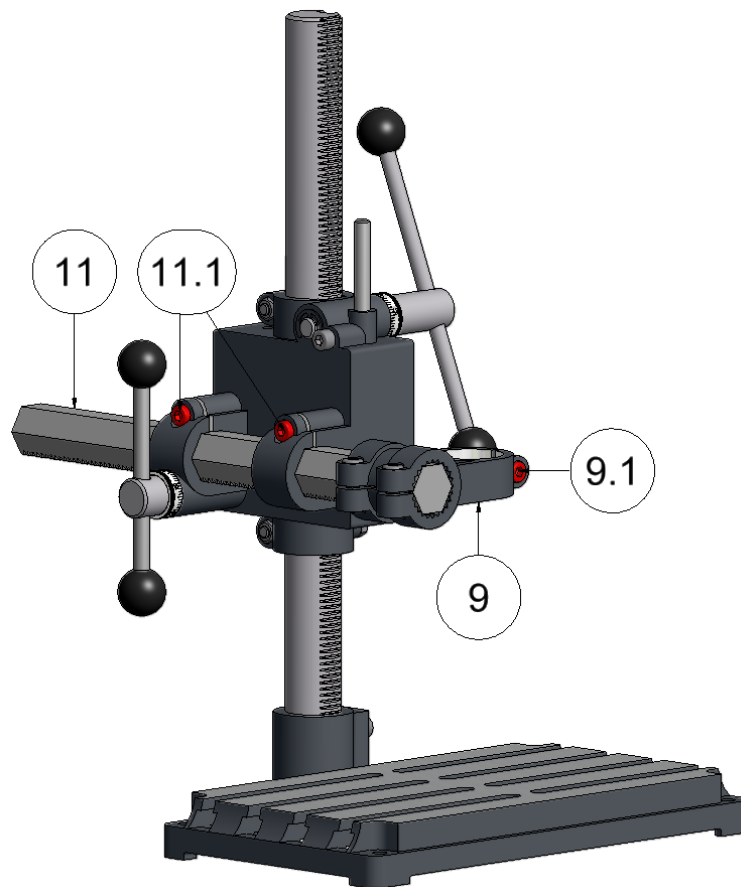
4.3 Lubrication

Prior to every use, some commercially available lubricating oil should be applied to the guide column and to the rotating points of the feed shaft. The housing and the hexagonal steel bracket of the drilling and milling stand must be moved up and down in this process.

4. Drilling stands/Milling stands

4.4. Inserting the drive unit for drilling

1. Position the neck of the hand-held drilling machine in the machine support (9).
2. Tighten the clamping screw (9.1) by using an Allen key.
3. Lock the extension rail (11) by tightening the two clamping screws (11.1).

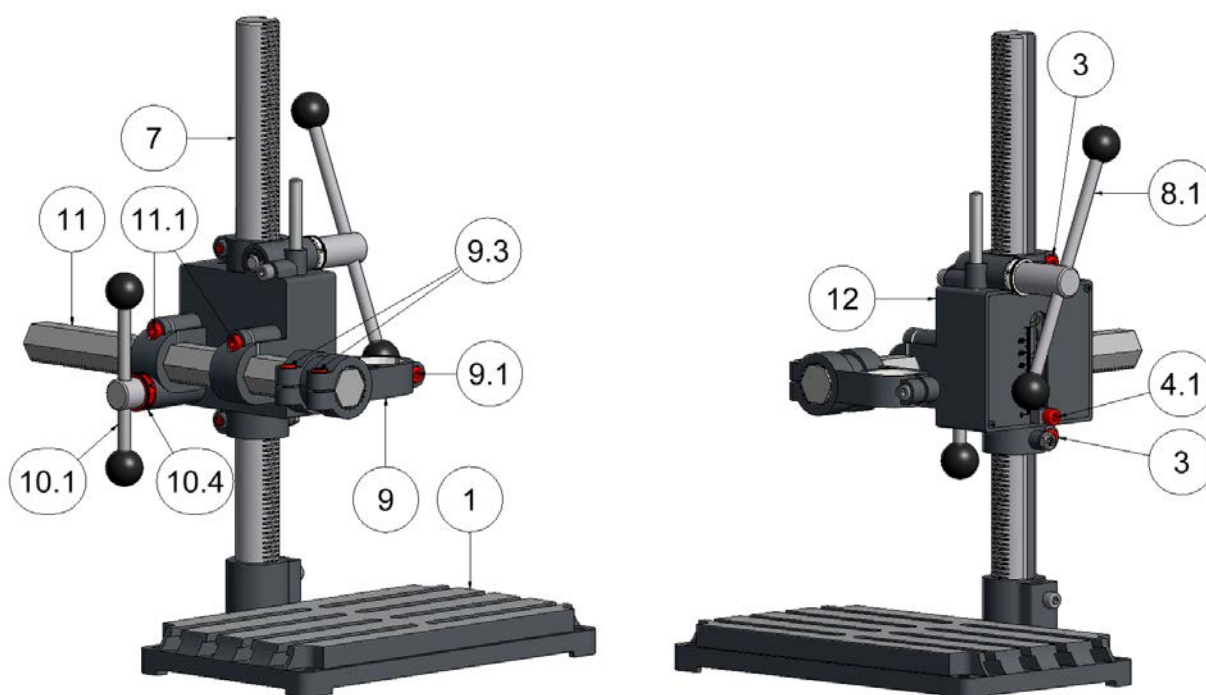


4. Drilling stands/Milling stands

4.5 Inserting the drive unit for milling

1. Position the neck of the hand-held drilling machine in the machine support (9).
2. Tighten the clamping screw (9.1) by using an Allen key.
3. Fix the work piece directly on the base plate (1), the rotary table or in a fixed machine vice.
4. Release the locking screw (4.1) and the clamping screw (3).
5. Descend the drive unit with clamped milling by using feed lever (8.1) until reaching the desired depth of the cut
6. Tighten the clamping screws (3)
7. Release a little bit the clamping screws (11.1) so that the hexagonal steel bracket (11) can be moved and adjusted without play by means of the feed lever (10.1)
8. The desired milling length can be read on the graduated scale (10.4)
9. To mill sloping surface you can rotate the machine support (9) step by step by 15 degree around the hexagonal steel bracket (11)
10. To do this please loose the two clamping screws (9.3) and take the machine support (9) off the hexagonal steel bracket (11)
11. Rotate the machine support (9) to the desired angle, slide it on the hexagon steel bracket (11) and tighten the clamping screws (9.3) again.

For milling operation the housing (12) can be fixed into position on the steel column (7) by means of the clamping screws (3).

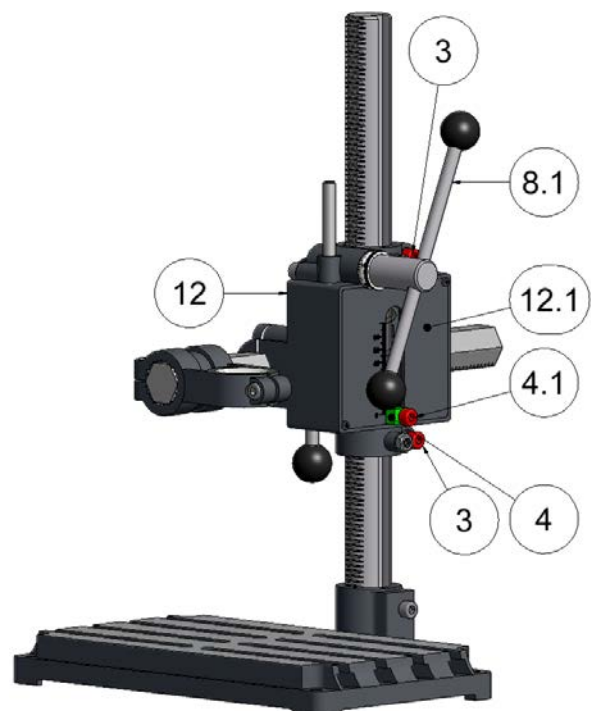
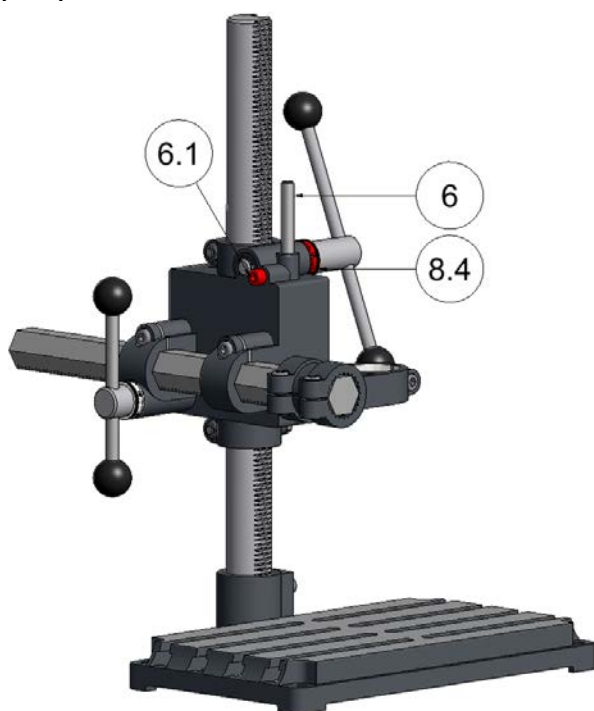


4. Drilling stands/Milling stands

4.6 Working with depth stop

1. Loosen the locking screw (4.1) of the clamping element (4) as well as the clamping screw (3) by means of an Allen key.
2. Lower the drive unit with clamped drill by feed lever (8.1) approximately 10mm over the workpiece to be drilled, thereby, the workpiece can be well removed later.
3. Tighten again the locking screw (4.1) of the clamping element (4)
4. Setting the mark of the graduated ring (8.4) to the zero line of the housing (12).
5. Lower carefully the drive unit with clamped drill using feed lever (8.1) to the extent that the drill tip touches the work piece to be drilled. Here, read the scale value of the graduated ring (8.4) at the zero line of the housing!
6. Remove the workpiece and release the locking screw (6.1).
7. Lower the housing (12) according to the value of the graduation ring (8.4) plus the depth of the hole with the feed lever (8.1) and move the depth stop (6) until the clamping part (4). Tighten the locking screw (6.1) again.
8. Let the housing (12) move upwards again so that the work piece can be clamped again.
The depth stop is hereby set at the desired hole depth can be used.

Faster, but less accurate, the depth of the borehole may also be read from the scale of the cover plate (12.1).



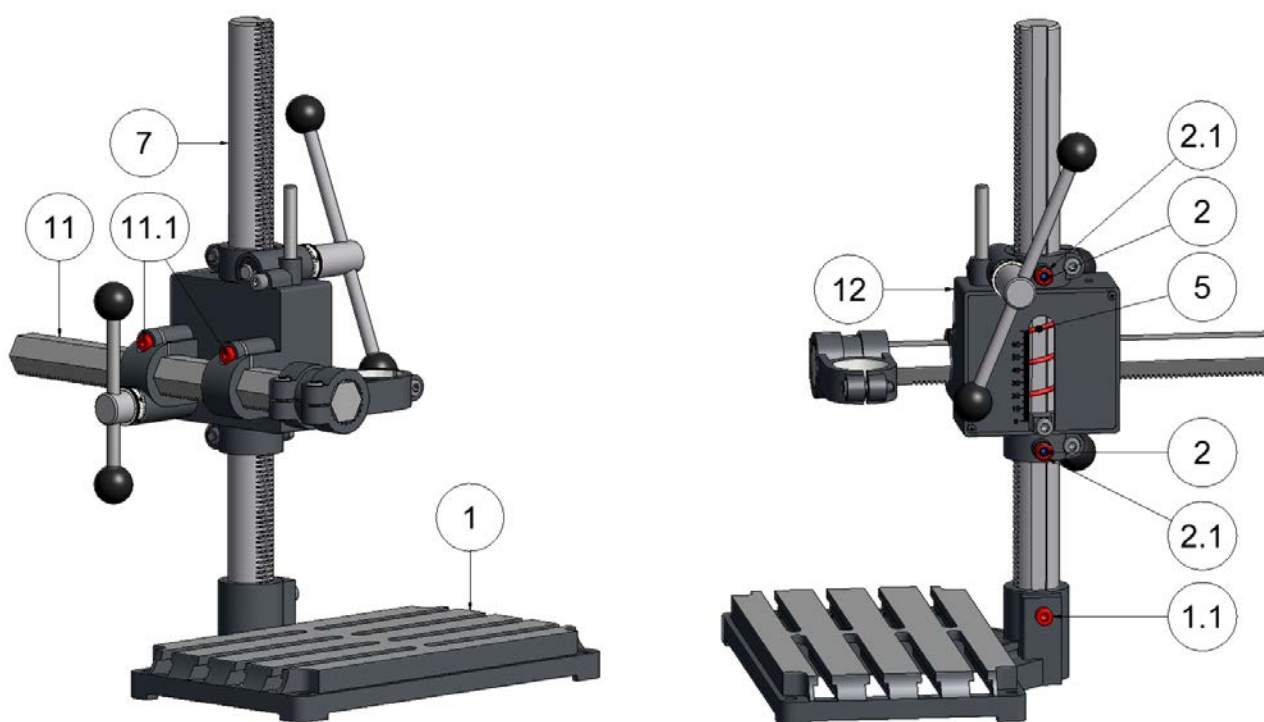
4. Drilling stands/Milling stands

4.7 Adjust the play of the housing

The machine support (12) of the drill stand can be adjusted without play. Should re-adjustment become necessary, please proceed as follows:

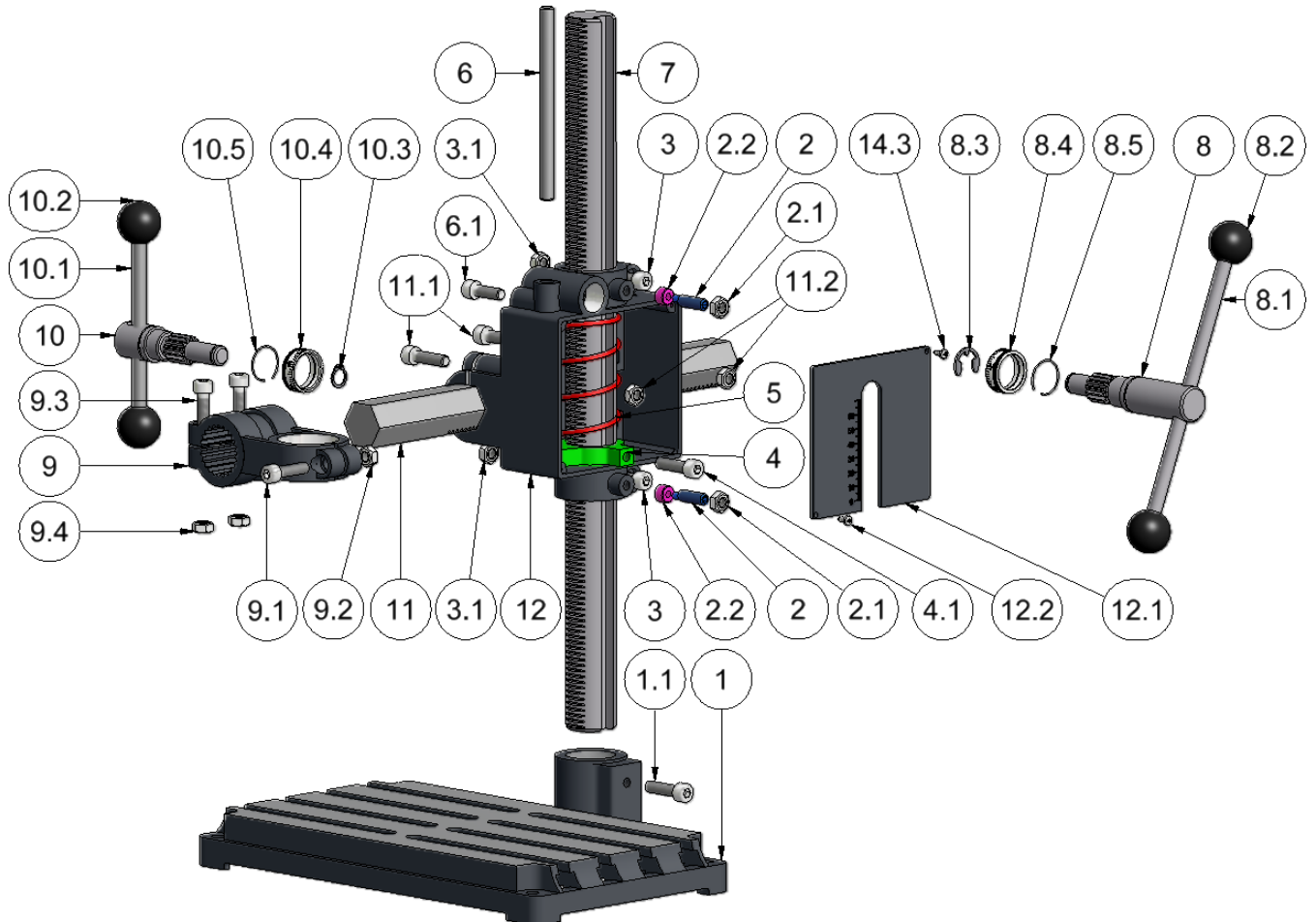
1. Loosen the two nuts (2.1) of the eccentric setscrews (2)
2. Turn the first eccentric setscrew (2) right using an Allen key
3. Turn the second eccentric setscrew (2) left until the housing (12) can still be moved back easily by the pressure spring (5)
4. when the adjustment is complete re-tighten the nuts (2.1)
5. By means of the clamping screw (11.1) the hexagonal steel bracket (11) is play-free adjustable in the hexagonal bore of the housing (12).

The guide housing (12) can be turned through 360 ° with the steel column (7) after releasing the clamping screw (1.1) in the base plate (1).



4. Drilling stands/Milling stands

4.8 Drawing ang legend



4. Drilling stands/Milling stands

4.8 Drawing and legend

Part No.	Pieces	Order No.	Designation
1	1	51407040-0001	Base plate
1.1	1	16191200008035	Clemping screw
2	2	91300008030-01	Eccentric setscrw
2.1	2	16193400008000	Nut
2.2	2	51508019	Guiding roller
3	2	16191200008030	Screw
3.1	2	16193400008000	Nut
4	1	51401003-0001	Locking ring
4.1	1	16191200008030	Screw
5	1	51502029	Pressure spring
6	1	51004010-0002	Depth stop
6.1	1	16191200008025	Locking screw
7	1	51004035-0002	Steel column 500 mm
	1	24451	Steel column 750 mm
	1	24452	Steel column 1000 mm
8	1	51004025-0003	Feed shaft
8.1	1	51004010-0003	Feed lever
8.2	2	51508311	Ball
8.3	1	16067990012000	Locking washer
8.4	1	51006731-00011	Graduated ring
8.5	1	51007970-0001	Spring ring
9	1	51006831-0010	Machine support
9.1	1	16191200008030	Screw
9.2	1	16193400008000	Nut
9.3	2	16191200008025	Clemping screw
9.4	2	16193400008000	Nut
10	1	51004025-0004	Feed shaft
10.1	1	51004010-0002	Feed lever
10.2	2	51508311	Ball
10.3	1	16147100012000	Locking washer
10.4	1	51006731-00012	Gratuated ring
10.5	1	51007970-0001	Spring ring
11	1	51004630-0001	Extension rail 350 mm
	1	24453	Extension rail 500 mm
11.1	2	16191200008030	Screw
11.2	2	16193400008000	Nut
12	1	51006831-0011	Housing
12.1	1	51006831-0012	Housing cover
12.2	2	16179810003095	Screw

5. Rotary table Order No. 22310

5.1 Rotate and swivel rotary table

The rotary table (3) can be swiveld by 360° and be rotated by its rotating part.

To rotate the rotary table please proceed as follows:

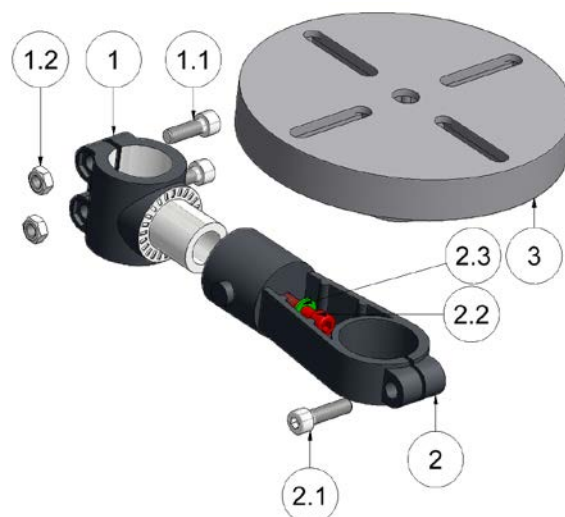
1. Loosen clamping screw (2.1)
2. Rotate the rotary table (3) to the desired position
3. Retighten the locking screw (2.1).

To swivel the rotary table please proceed as follows:

1. Loosen clamping screw (2.1)
2. Remove the rotary table (3) from the rotating unit (2).
3. Loosen the locking screw (2.2) by approximately 3-4 mm using an Allen key.
4. Pull the rotating unit (2) out of the notches at the frontal sides.
5. Turn the rotatry table to the required position and re-engage it in the notches (this adjustment can only be made in steps of 15° each!)
6. Retighten the locking screw (2.1).
7. Replace the rotary table (3)
8. Retighten the clamping screw (2.2)

By loosen the clamping screw (1.1) the rotary table can be adjusted in its height respectively it can be rotated 360° around the column (7).

5.2 Drawing and legend Order No. 22310



Part-No.	Piece	Order No.	Designation
1	1	51006831-0007	Clamping element
1.1	2	16191200008025	Srew
1.2	2	16193400008000	Nut
2	1	51006831-0008	Rotating unit
2.1	1	16191200008030	Screw
2.2	1	16191200008045	Screw
2.3	1	16112500008001	Washer
3	1	51006831-0009	Rotary table

6. Machine support Order No. 24460

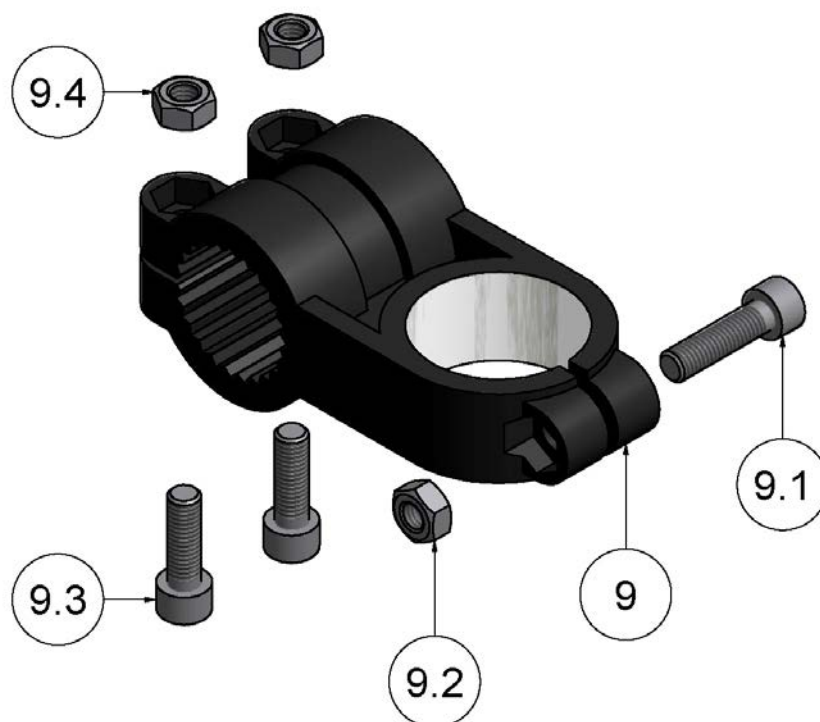
6.1 Assembly

The machine support is used to hold a second drive unit in the drill stand / milling stand.

Due to the internal toothing of the machine support it is possible to rotate it in 15° steps around the hexagon steel arm (11) of the drill stand/ milling stand.

1. Position the neck of the hand-held drilling machine in the machine support (9) and align the drive unit
2. Tighten the clamping screw (9.1) by means of an Allen key
3. Loosen the clamping screw (9.3) of the base plate (9) by means of an Allen key
4. Install the machine support (9) at the desired angle to the extension-steel rail (11) of the drill stand/milling stand
5. Re-tighten the clamping screw (9.3) of the machine support (9)

6.2 Drawing and legend Order No. 24460



Part No.	Pieces	Order No.	Designation
9	1	51006831-0010	Machine support
9.1	1	16191200008030	Clamping screw
9.2	1	16193400008000	Nut
9.3	2	16191200008025	Clamping screw
9.4	2	16193400008000	Nut

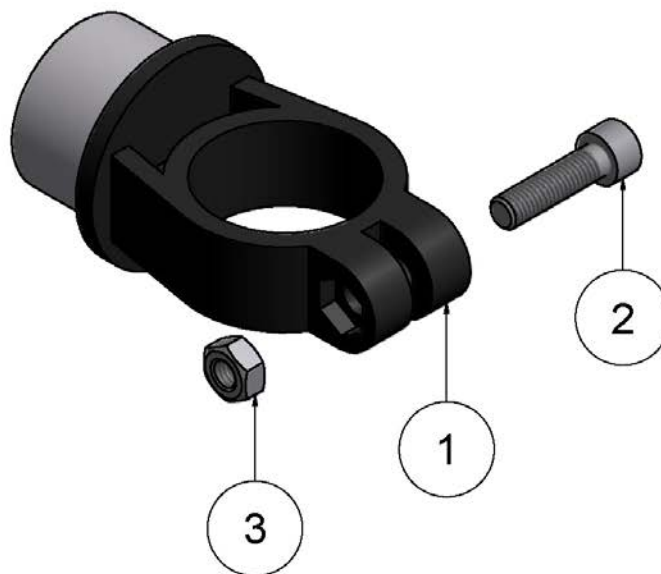
7. Clamping fixture Order No. 22312

7.1 Assembly

The clamping fixture is installed into the machine support of the drilling stand respectively drilling stand/milling stand.

1. Install the span neck of the drive unit into the clamping fixture (1).
2. Tighten the clamping screw (2) by means of an Allen key.
3. Release the clamping screw (9.1) of the respective machine support (9) with an Allen key
4. Push the clamping fixture into the machine support (9) until the collar of the clamping fixture touches the machine supports.
5. Adjust the drive unit
6. Re-tighten the clamping screw (9.1) of the machine support (9)

7.2 Drawing and legend Order No. 22312



Part No.	Pieces	Order No.	Designation
1	1	51006831-0016	Clamping fixture
2	1	16191200008030	Screw
3	1	16193400008000	Nut

8. Tapping attachment Order No. 35805

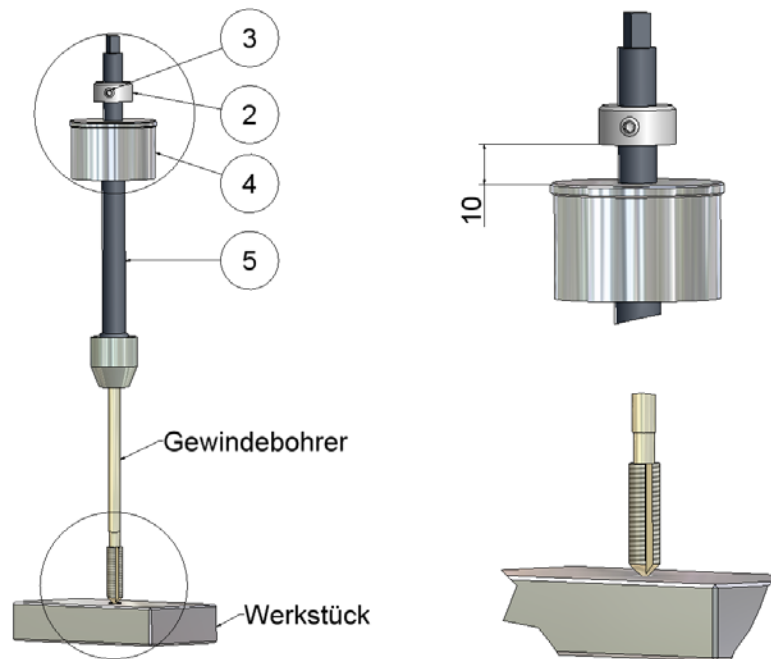
8.1 Handling

Lower the machine support (9) of the drill stand respectively drill/milling stand with clamped tapping attachment (2 - 5) until the workpiece to be drilled. The thread depth can be adjusted exactly by means of the adjusting ring (2) (**Picture 1**).

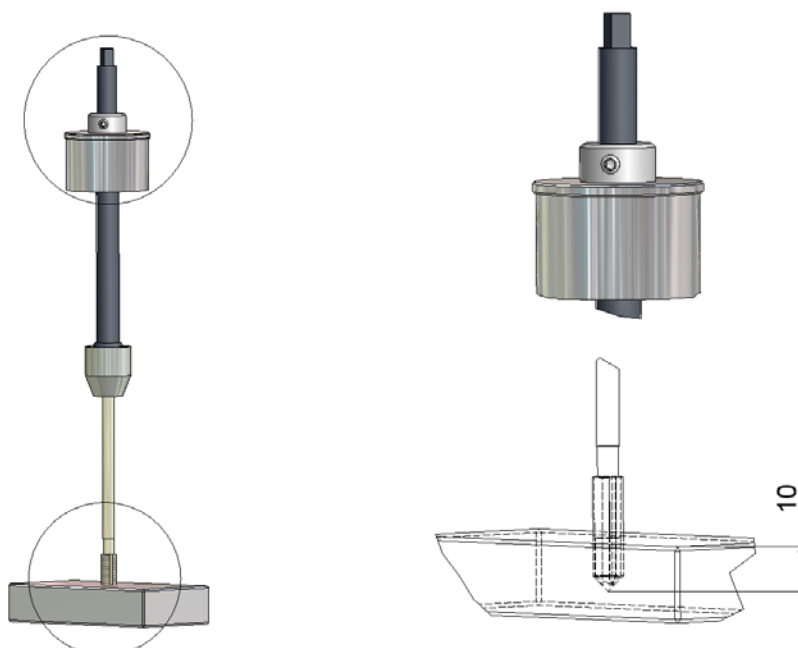
Cut the thread with the help of the adjustable tap wrench. If the ring (2) arrives on the receptacle (4) (**Picture 2**), the desired thread depth is reached.

Picture 1

In this picture the collar is prepared for a thread length of 10 mm.

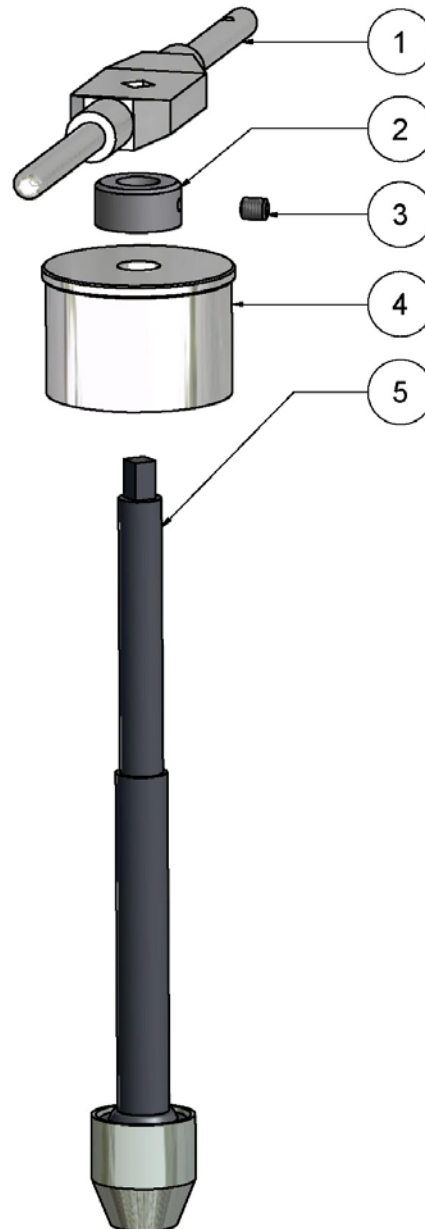


Picture 2



8. Tapping attachment Order No. 35805

8.2 Drawing and legend Order No. 35805



Part No.	Pieces	Order No.	Bezeichnung
1	1	30600	Adjustable tap wrench
2	1	160705A0010000	Collar
3	1	16191300005006	Eccentric setscrew
4	1	51006545-0020	Adapter
5	1	35802	Tool holder

9. Milling table Order No. 24410

9.1 Assembly

1. Screw on the crank handles (4.4) and (5.4) the respective handwheel.
2. Fix the milling table with the base plate of the drilling/milling stand using 4 screws M10.

9.2 Lubrication

Proper care and maintenance are essential for a long service life. All sliding surfaces and feed screws must be thoroughly oiled with customary greasing oil before each use.

To do so, the top slide (1) must be moved in the respective axes back and forth during the lubrication procedure.

9.3 Readjust the guides

To readjust the guides please proceed as follows:

1. Loosen the counter nut (9.1) respectively (11.1)
2. Adjust the two taper gibs (7) and (8) with the eccentric setscrews (9) and (11) so that each axis can be traversed without play and with little effort. The corresponding carriage should proceed repeatedly during the adjustment and should be checked for play and function.
3. Retighten the counter nut (9.1) respectively (11.1)

Fix the eccentric setscrews (9) and (11) only if the associated taper gib lies flat in the area of the respective eccentric setscrew on the counter guide! Otherwise it may cause jamming of the guidance and may be damaged.

Both guides can also be clamped with 2 screws. In the lower guide (Y-axis) these are the set screws (16). In the upper guide (X axis) these are the locking screws (10). It is always essential to clamp the guide whose direction of movement is opposite to the working direction.

In normal drilling, where no table movement is needed, both guides should be clamped.

It is absolutely necessary to release the locking screws before adjustment. Otherwise the guide or the thread may be destroyed!

9.4 Working instruction

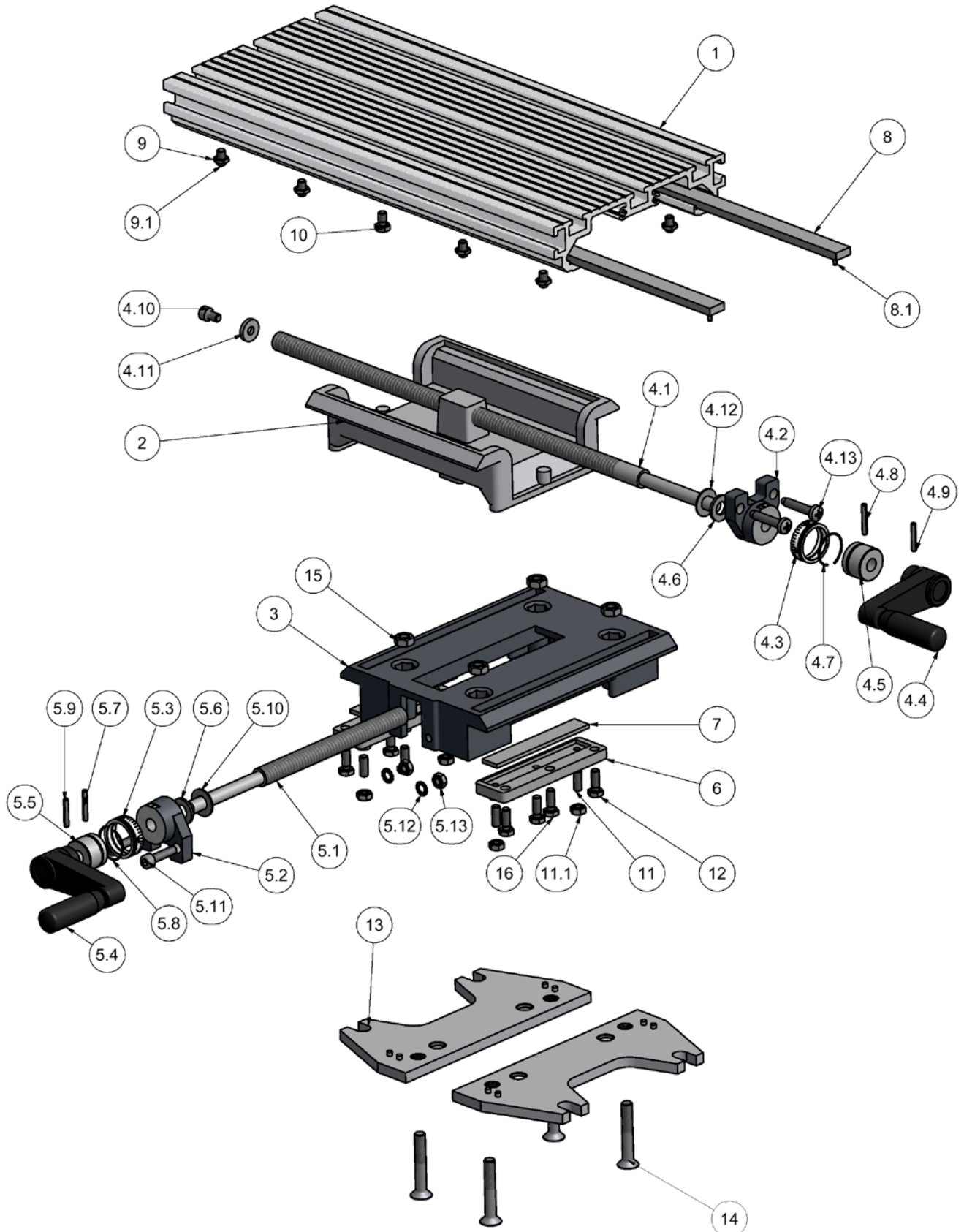
Metal and plastic and wooden work pieces are clamped with a WABECO vice or WABECO clamping jaws.

The travel path of the milling table can be read off within 1/10 mm on 2 adjustable graduated collars.

When milling always feed the work piece against the cutting direction of the tool.

9. Milling table Order No. 24410

9.5 Drawing and legend Order No. 24410



9. Milling table Order No. 24410

9.5 Drawing and legend Order No. 24410

Part No.	Pieces	Order No.	Designation
1	1	51407180-0001	Top slide
2	1	51006831-0022	Cross slide
3	1	51006831-0020	Base plate
4.1	1	51004014-0006	Spindle
4.2	1	51407140-0001	Spindle bearing
4.3	1	51006731-00015	Graduated ring
4.4	1	51507010	Hand crank
4.5	1	51004025-0010	Collar
4.6	1	16020930020005	Disc spring
4.7	1	51007970-0001	Spring ring
4.8	1	16073430003024	Spiral pin
4.9	1	16073430003022	Spiral pin
4.10	1	16191200006010	Screw
4.11	1	16173490176530	Washer
4.12	1	16112500010000	Washer
4.13	2	16179810006032	Screw
5.1	1	51004014-0007	Spindle
5.2	1	51407140-0001	Spindle bearing
5.3	1	51006731-00015	Graduated ring
5.4	1	51507010	Hand crank
5.5	1	51004025-0010	Collar
5.6	1	16020930020005	Disc ring
5.7	1	16073430003024	Spiral pin
5.8	1	51007970-0001	Spring ring
5.9	1	16073430003022	Spring ring
5.10	1	16112500010000	Washer
5.11	2	16191200006025	Scew
5.12	2	16167980006000	Washer
5.13	2	16193400006000	Nut
6	2	51006831-0021	Retainer plate
7	2	51001015-0001	Taper gib
8	2	51001017-0001	Taper gib
8.1	2	16073430003010	Spiral pin
9	8	16091300006012	Setscrew
9.1	8	16143900006000	Nut
10	2	16193300006010	Screw
11	4	16091300006016	Setscrew
11.1	4	16193400006000	Nut
12	6	16193300006016	Screw
13	2	51006831-0023	Clamping retainer
14	4	16079910008045	Screw
15	4	16193400008000	Nut
16	2	16193300006016	Screw